

427 5 1. A method of manufacturing a bioactive fluid dose on an ingestible sheet, comprising the steps of:
advancing the ingestible sheet to a dispense position; and
activating a fluid ejector to dispense at least one drop of a bioactive fluid onto the ingestible sheet.

347 10 2. The method of claim 1, further comprising the step of printing manufacturing information onto the ingestible sheet.

15 3. The method of claim 2, wherein said step of printing further comprises the step of printing said manufacturing information onto the ingestible sheet in a machine understood form.

4. The method of claim 2, wherein said step of printing further comprises the step of printing said manufacturing information onto the ingestible sheet in a human-perceptible form.

20 5. The method of claim 2, wherein said step of printing further comprises the step of ejecting an ingestible ink from at least one ink ejector fluidically coupled to an ink reservoir onto the ingestible sheet.

6. The method of claim 1, further comprising the step of sealing the dispensed bioactive fluid on the ingestible sheet.

25 7. The method of claim 6, wherein the step of sealing further comprises the step of activating a second fluid ejector to eject a barrier component fluid over the dispensed bioactive fluid.

30 8. The method of claim 1, wherein the step of activating further comprises the step of activating said first fluid ejector to eject a predetermined number of ejections of the bioactive fluid.

9. The method of claim 1, wherein the step of activating further comprises the step of dispensing the bioactive fluid in a two dimensional array of bioactive fluid deposits onto the ingestible sheet forming a dosage form.

5 10. The method of claim 9, wherein the dosage form includes a first edge and a second edge, wherein the density of the bioactive fluid deposits varies between the first edge and the second edge, whereby a bioactive fluid gradient is formed.

10 11. The method of claim 10, wherein the bioactive fluid gradient is adapted to provide a dosage form wherein after being ingested the amount of the bioactive fluid released increases over time.

15 12. The method of claim 10, wherein the bioactive fluid gradient is adapted to provide a dosage form wherein after being ingested the amount of the bioactive fluid released decreases over time.

20 13. The method of claim 10, wherein the bioactive fluid gradient is adapted to provide a dosage form wherein after being ingested the amount of the bioactive fluid released remains constant over time.

25 14. The method of claim 10, wherein the bioactive fluid gradient is adapted to provide a dosage form wherein after being ingested a discrete amount of the bioactive fluid is released in a repeatable manner over time.

15. The method of claim 10, wherein the bioactive fluid gradient is adapted to provide a dosage form wherein after being ingested a discrete amount of the bioactive fluid is released over different times.

16. The method of claim 1, wherein the step of activating further comprises the step of depositing essentially a drop of a bioactive fluid onto the ingestible sheet wherein the fluid is in the range of from about ten femto-liter to about ten-micro-liter volume.

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17. A bioactive fluid dose on an ingestible sheet produced by the method of claim 1.

PBP
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18. The method of claim 1, wherein the step of activating further comprises the step of dispensing the bioactive fluid in overlapping deposits forming essentially a layer of the bioactive fluid.

19. The method of claim 1, wherein the step of activating further comprises the step of activating a second fluid ejector to dispense at least a drop of a second bioactive fluid onto the ingestible sheet.

20. The method of claim 1, wherein the step of activating further comprises the step of activating a plurality of fluid ejectors to dispense at least a drop of a plurality of bioactive fluids on a plurality of ingestible sheets wherein the plurality of bioactive fluids are different.

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21. The method of claim 20, further comprising the step of laminating the plurality of ingestible sheets.

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22. A bioactive fluid dose produced by the method of claim 21.

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23. The method of claim 1, wherein the step of activating further comprises the step of activating a plurality of fluid ejectors to dispense at least a drop of a plurality of bioactive fluids on the ingestible sheet, wherein the plurality of bioactive fluids are different.

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24. A bioactive fluid dose produced by the method of claim 23.

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25. A tablet using the method of claim 1, and further including a step
of the step of encapsulating the ingestible sheet thereby forming a tablet.

5 26. The tablet of claim 25, wherein the ingestible sheet is
perforated.

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27. The method of claim 1, further comprising the step of printing
user information on the ingestible sheet.

10 28. An interactive method of generating a custom bioactive fluid
dose on an ingestible sheet, comprising the steps of:

requesting a quantity of the bioactive fluid to be dispensed by a
bioactive fluid dispensing system;

15 receiving said quantity of the bioactive fluid dose to be dispensed by a
bioactive fluid dispensing system, specified from a first source;

converting said quantity to a number of activations of a fluid ejector on
a processor;

transmitting said number of activations to a drop-firing controller;

advancing the ingestible sheet to a dispense position; and

427 20 activating a first fluid ejector for said number of activations wherein
each activation dispenses essentially a drop of a bioactive fluid onto the
ingestible sheet.

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Dispensing

25 29. The method of claim 28, further comprising the step of inserting
a bioactive fluid container into the bioactive fluid dispensing system, wherein
said bioactive fluid container is fluidically coupled to a bioactive fluid reservoir
of a semi-permanent cartridge.

30 30. The method of claim 28, further comprising the step of inserting
a replaceable bioactive fluid ejection cartridge into the bioactive fluid
dispensing system.

31. The method of claim 28, further comprising the step of inserting an ingestible ink container into the bioactive fluid dispensing system, wherein said ingestible ink container is fluidically coupled to an ingestible ink reservoir of a semi-permanent ink cartridge.

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32. The method of claim 28, further comprising the step of inserting a replaceable ingestible ink ejection cartridge into the bioactive fluid dispensing system.

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33. The method of claim 28, further comprising the step of reading information from the ingestible sheet.

34. The method of claim 33, wherein the information is stored in a machine readable form.

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35. The method of claim 33, wherein the information is stored in a human perceptible form.

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36. The method of claim 28, further comprising the step of accessing information from the bioactive fluid cartridge.

37. The method of claim 28, further comprising the step of accessing information from an off-axis bioactive fluid container.

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39. The method of claim 28, further comprising the steps of: receiving dosage information specified from said first source; and verifying said dosage information from a second source.

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Dispensing

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40. The method of claim 28, further comprising the steps of: requesting user information from said first source; receiving said user information specified by said first source;

verifying said user information from a second source; and
printing said user information onto the ingestible sheet provided said
user information is verified.

5 41. The method of claim 40, wherein said step of printing further
comprises the step of printing a date and time for the custom bioactive fluid
dose to be ingested.

10 42. The method of claim 40, wherein said step of printing further
comprises the step of printing an image on the ingestible sheet.

15 43. The method of claim 28, further comprising the steps of:
requesting manufacturing information from a second source;
receiving said manufacturing information specified by said second
source;
verifying said manufacturing information from a third source; and
printing said manufacturing information onto the ingestible sheet
provided said manufacturing information is verified.

20 44. The method of claim 43, wherein said printing step further
comprises the step of printing said manufacturing information onto the
ingestible sheet in a machine understood form.

25 45. The method of claim 43, wherein said printing step further
comprises the step of printing said manufacturing information onto the
ingestible sheet in a human-perceptible form.

30 46. The method of claim 28 further comprising the step of verifying
said quantity of the bioactive fluid to be dispensed.

47. The method of claim 28, further comprising the steps of:

receiving user information;
receiving manufacturing information;
receiving dosage information; and
accessing a dose algorithm wherein said dose algorithm combines said
5 user input information and said manufacturing information with said dosage
information in a predetermined manner to generate a custom bioactive fluid
dose on the ingestible sheet.

48. The method of claim 28, further comprising the step of ejecting a
10 barrier component fluid over the bioactive fluid dispensed on the ingestible
sheet.

49. The method of claim 28, wherein the step of activating further
comprises the step of dispensing the bioactive fluid in a two dimensional
array.
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50. The method of claim 28, wherein the step of activating further
comprises the step of depositing essentially a drop of a bioactive fluid onto the
ingestible sheet wherein the fluid is in the range of from about ten femto-liter
20 to about ten-micro-liter volume.

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51. A bioactive fluid dose on an ingestible sheet produced by the
method of claim 28.

25 52. The method of claim 28, further comprising the step of inserting
a cartridge having a mixture of a bioactive active fluid and an ingestible ink in
a fluid reservoir.

30 53. The method of claim 28, further comprising the step of loading
an ingestible sheet into the bioactive fluid dispensing system.

54. A method of manufacturing a bioactive fluid dose on an ingestible sheet comprising the steps of:

inserting a fluid ejection cartridge containing a mixture of an ingestible ink and a bioactive fluid in a reservoir forming a printable bioactive fluid;

5 fluidically coupling said reservoir to at least one fluid ejector;

advancing the ingestible sheet to a dispense position;

specifying a user message;

printing said user message on the ingestible sheet using said printable bioactive fluid.

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55. An ingestible sheet usable in an apparatus for manufacturing a pharmaceutical dose comprising:

a first dosage form having a first two dimensional array of deposits of a bioactive fluid dispensed thereon; and

15 a second dosage form having a second two dimensional array of deposits of a bioactive fluid dispensed thereon; wherein said first dosage form and said second dosage from of the ingestible sheet are not overlapping.

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56. An ingestible sheet usable in an apparatus for manufacturing a pharmaceutical dose comprising:

a first dosage form having a first two dimensional array of deposits of a bioactive fluid dispensed thereon; and

25 a second dosage form having a second two dimensional array of deposits of a bioactive fluid dispensed thereon; wherein said first dosage form and said second dosage from of the ingestible sheet are overlapping

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57. The ingestible sheet of claim 55, further comprising an information portion of the ingestible sheet having manufacturing information disposed thereon.

58. The ingestible sheet of claim 57, wherein said manufacturing information includes at least one item selected from the group consisting of, a

date of manufacture, a composition of the ingestible sheet, an inspection date, an expiration date, quality control information, data on compatibility with bioactive fluids, and dispensing system parameters.

5 59. The ingestible sheet of claim 57, wherein said information portion has user information disposed thereon.

10 60. The ingestible sheet of claim 59, wherein said user information includes patient information.

15 61. The ingestible sheet of claim 55, wherein said ingestible sheet further comprises a releasable backing.

20 62. The ingestible sheet of claim 55, wherein said ingestible sheet contains a starch and glycerin-based paper.

25 63. The ingestible sheet of claim 55, wherein said ingestible sheet further comprises a pre-perforated sheet.

30 64. The ingestible sheet of claim 55, wherein said ingestible sheet further comprises a component selected from the group consisting of starch, glycerin, gelatin, cellulose, polysaccharides, and any combination thereof.

25 65. The ingestible sheet of claim 55, wherein said ingestible sheet further comprises a component selected from the group consisting of restructured fruits, restructured vegetables, and any combination thereof.

30 66. The ingestible sheet of claim 55, wherein said ingestible sheet contains a water expandable foam.

67. The ingestible sheet of claim 55, wherein said ingestible sheet has a thickness from about 10 to about 350 microns.

68. A kit for producing a pharmaceutical dose comprising:
at least one ingestible sheet; and
a fluid ejection cartridge containing at least one bioactive fluid in a
reservoir, wherein said at least one bioactive fluid is compatible with said at
least one ingestible sheet.

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69. The kit of claim h1, wherein said fluid ejection cartridge further
comprises an ingestible ink contained in a second reservoir.

70. The kit of claim h1, wherein said fluid ejection cartridge further
comprises a barrier material contained in a second reservoir.

71. The kit of claim h1, further comprises a second fluid ejection
cartridge containing at least one ingestible ink.

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72. The kit of claim h1, further comprises a second fluid ejection
cartridge containing at least one barrier material.